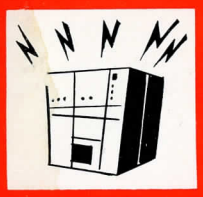
DACOM

enables electronic computers to talk your language

RECORDAK

(Subsidiary of Eastman Kodak Company)



Computers Provide Answers at Millions a Minute

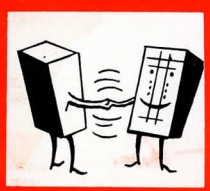
Today's electronic computers are marvels of the age. At speeds beyond comprehension, they solve intricate computations with superhuman accuracy. They combine mathematical functions with logical decisions and provide resulting solutions with the speed of a flash of light. Already these electronic brains are speeding scientific progress and eliminating long, time-consuming operations for research analysts, engineers, business administrators – and anyone faced with involved calculations.

But the Answers are in Magnetic "Bits" on Tape

Fast as computers are, their language is usually limited to impulses on magnetic tape. This is fine where the information is to be fed back into the computer for the solution of other problems. But if the information made available is to be immediately understood and used, it must be deciphered and made readable – in a language anyone can understand.

Output Has Been a Bottleneck

To get full benefit of the computer's fabulous speed, printing must be equally fast. This has been the bottleneck. While the "bits" on magnetic tape could be made to actuate a mechanical printer, these machines—even the swiftest – are far too slow. They can penalize the fast work of the computer by more than 75%—reduce the computer's efficiency to less than 25%. Eliminating this bottleneck of slow printing can save precious time in gaining information, permit electronic computers to spend more time *computing*, thereby multiplying the value of the investment in the machine many times. To do this is the purpose of DACOM. (Datascope Computer Output Microfilmer)



DACOM Matches the Computer's Speed

DACOM, developed by Eastman Kodak Company—operates *electronically* and matches the speed of the electronic computer. It takes the "bits" of information from magnetic tape, or directly from the computer, and translates them into letters and figures instantly. These appear as the finished message on the face of a cathode ray tube.

DACOM Reports in Understandable Language

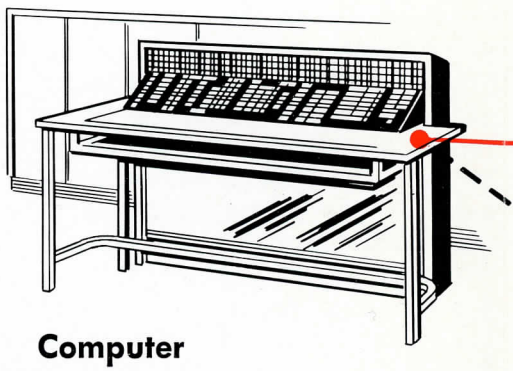
As many as 66 lines of 130 characters can appear as a page. And this can occur and be photographed on microfilm in excess of 2 frames per second. DACOM'S use of microfilm enables the computer to produce mountains of data in compact form—data ready to be "stored", viewed or reproduced in printed form.

Provides the Advantages of Microfilm

DACOM translates information from "bits" to readable material at incredible speed. It gives you this information on microfilm for viewing on a reader or for sharp, clear print reproduction. And, microfilm, provides the advantage of being able to store your records in 98% less space than previously. As one company has said, "thirty-six miles of paper every few weeks reduced to a few rolls of microfilm! Do you realize what that can save us?"

How DACOM

This diagram sho

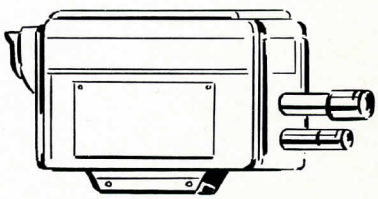


Computer

Off-line: signal to tape unit

On-line: signal directly to decoder

DACOM data is rec



The Electronic Camera

In seconds, the cathode ray tube can display pages of readable information. To match this phenomenal speed, the electronicall[y] trolled camera photographs the face cathode ray tube. Snapping the exposu[re] moving the film are accomplished in rapid and automatic sequence. This is controlled by codes on the magnetic tape.

* TRADEMARK

*

brings electronic translation to electronic computing

...he steps which make up DACOM (DAtascope Computer Output Microfilmer)

Magnetic Tape Unit

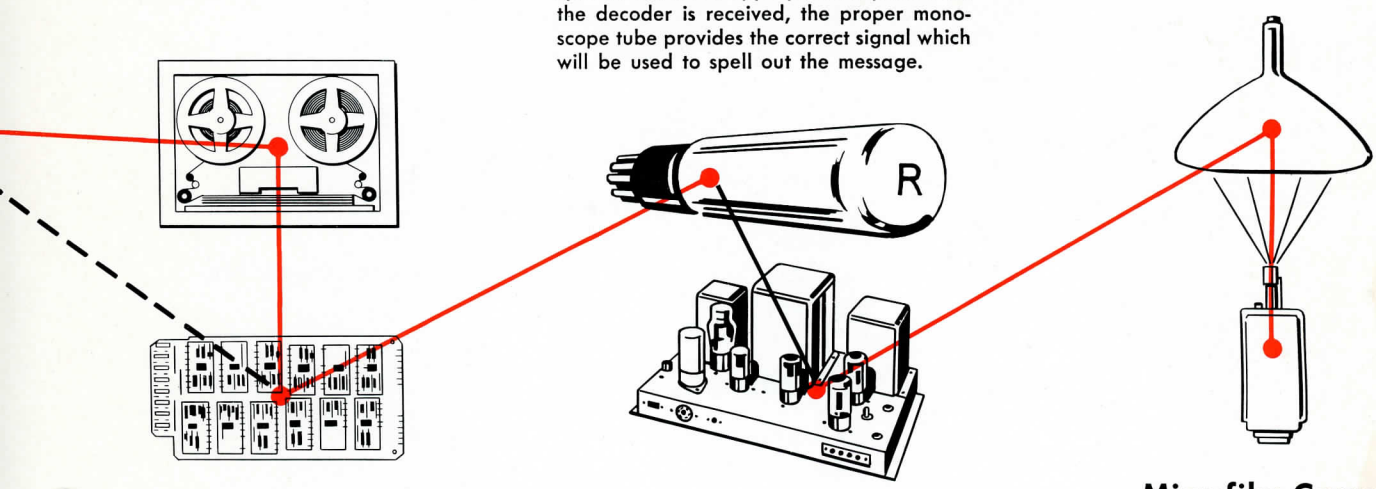
This unit plays back the magnetic tape as received from the computer. The information is in the form of magnetic impulses called "bits". While information in this form is sufficient for re-use by a computer, it is unintelligible. It must be decoded, translated and displayed to become readable.

Monoscope Tubes

Actually, this is a bank of 60 tubes. Each one represents an alphabetic, numeric or special character, such as plus and minus, in any language required. If more symbols are needed, additional banks of monoscopes are easily added. There is almost no limit to the number of monoscope tubes in the system. When the appropriate impulse from the decoder is received, the proper monoscope tube provides the correct signal which will be used to spell out the message.

Cathode Ray Tube

In lightning fast succession, the clearly defined characters are flashed to the face of the cathode ray tube. Here they become visible light ready to be recorded photographically by the electronically controlled camera—on microfilm.



...coder

This translates "bits", and combinations of "bits", into impulses which are used to represent the characters we understand. It unscrambles the computer language and calls for the letters and numerals which spell out the data which we can read.

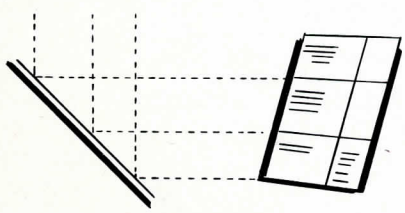
Video Amplifier

The signal from a gated monoscope tube passes to the V.A. where it is "strengthened" for use by the cathode ray display tube.

Microfilm Camera

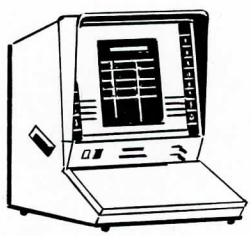
With the speed of light, information on the computer's tape becomes visible language on the Cathode Ray tube

...orded for study and storage on Microfilm



Background Format

Although DACOM can, of course, print out in its own regular tabulating form—statements, ...ulated reports, etc. — circumstances fre... ...ntly require constant data to be displayed ...ng with its linear format. A split optical system permits the DACOM microfilmer to photograph *both* simultaneously. Pages are as perfect in format as if photo composed . . . print quality equal to that of fine printing.



The Film Record

Rapid film processing delivers the information quickly in economical microfilm form. Each page on the 16mm film is permanently recorded in a space less than ½ inch square. It is ready for quick reference in a microfilm reader. The image is clear and sharp. It can be enlarged and printed by any modern method.

DACOM

brings all the advantages of microfilm to the electronic computer

ADDITIONAL DETAILS ABOUT DACOM . . .

additional details about

DACOM

• Operation

Off-line, reading magnetic tape produced by a computer
On-line direct from computer memory

• Input rate

15,000 characters per second (or more, depending upon system)

• Output capacity

Variable page layout
As many as 130 characters per line
As many as 66 lines per page
6923 lines per minute or more, at 130 characters per line
Excellent character resolution

• Electronic camera

Uses unperforated, fine grain, 16mm film
Capacity, 1000 ft. film in magazine
Film spacing easily varied

• Recordak film reader

Permits quick study of information
Indexing systems allow for ready location of material

1,000 feet of DACOM film contains the decoded information from more than 35 reels of 2400-foot magnetic tape.

For further information on DACOM contact:
Systems and Product Planning Department

RECORDAK
CORPORATION
(Subsidiary of Eastman Kodak Company)
originator of modern microfilming
415 Madison Avenue, New York 17, N. Y.

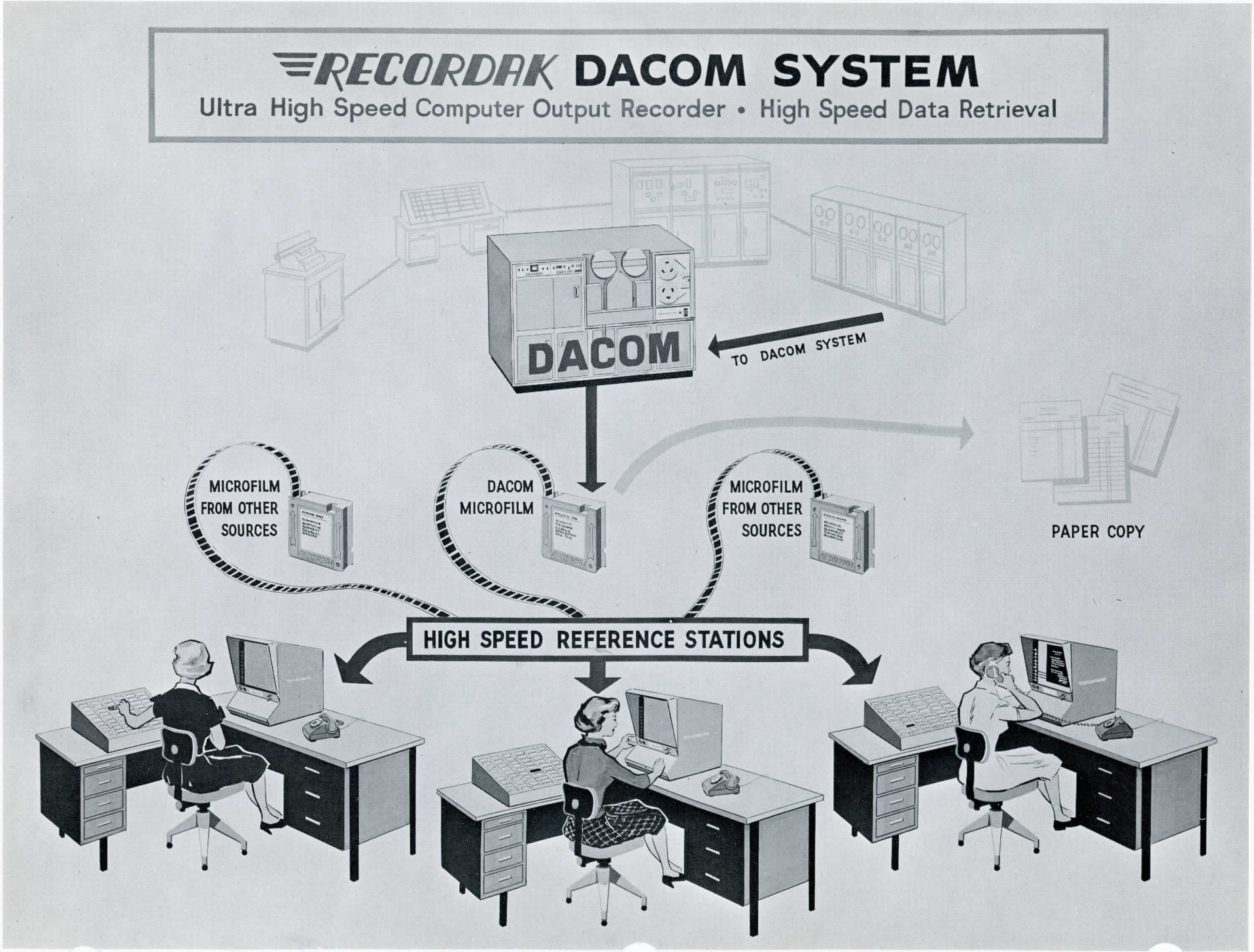
"Recordak" is a trade mark

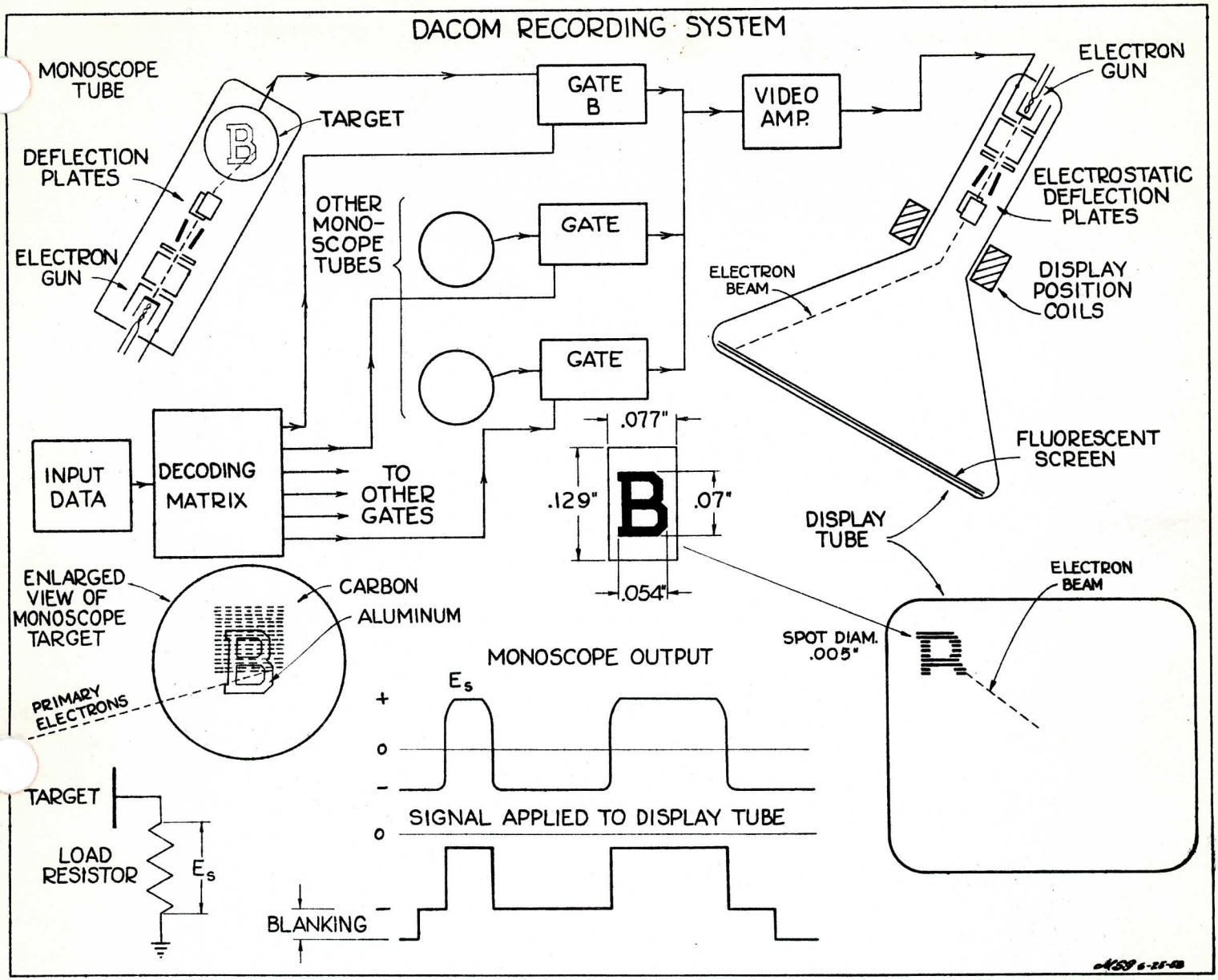
A-1001 4-59 IM

Printed in U.S.A.

RECORDAK DACOM SYSTEM

Ultra High Speed Computer Output Recorder • High Speed Data Retrieval




DACOM RECORDING SYSTEM
MONOSCOPE TUBE
TARGET
DEFLECTION PLATES
ELECTRON GUN
OTHER MONO-SCOPE TUBES
GATE B
GATE
GATE
VIDEO AMP.
ELECTRON GUN
ELECTROSTATIC DEFLECTION PLATES
ELECTRON BEAM
DISPLAY POSITION COILS
FLUORESCENT SCREEN
INPUT DATA
DECODING MATRIX
TO OTHER GATES
.077"
.129"
.07"
.054"
DISPLAY TUBE
ENLARGED VIEW OF MONOSCOPE TARGET
CARBON
ALUMINUM
PRIMARY ELECTRONS
MONOSCOPE OUTPUT
E_s
+
0
-
SIGNAL APPLIED TO DISPLAY TUBE
0
BLANKING
TARGET
LOAD RESISTOR
E_s
ELECTRON BEAM
SPOT DIAM. .005"

The above drawing illustrates the basic operation of the electronic character display unit of a DACOM* (DAtascope* Computer Output Microfilmer) recording system.

An electron beam is used to scan the monoscope tube target plate. Primary electrons striking the aluminum portion of the target knock off secondary electrons. Little or no secondary emission takes place when the electron beam strikes the carbon background. This action produces a "video" signal representing the character on the monoscope target plate. This signal is similar to that which operates the picture tube in a television receiver. The video signal, however, instead of being repeated 30 times a second as in a television receiver, is produced only once each time an input data code group is received. In the present system up to 20,000 code groups a second can be decoded and displayed as characters.

Coded data, as read by standard magnetic tape readers, is fed to the decoding matrix, which, depending upon the code received, will "open" one of the monoscope "gate" circuits. There is a monoscope tube and gate for each different character to be displayed. Receipt of each code signal causes all monoscope tubes to be scanned. However, only the video character signal produced by the monoscope tube connected to the one "open" gate will be amplified and used to modulate the electron beam of the display tube.

The same character scanning deflection signal is applied to the electrostatic plates in the display tube as is applied to the deflection plates in the monoscope tube. Therefore, the character scanned on the monoscope target will be reproduced on the display tube screen. The particular position a given character occupies on the face of the display tube will be determined by the current which flows in the "display position coils." This current is controlled by the magnetic tape input data.

*Trademark
5/12/60

RECORDAK CORPORATION
(Subsidiary of Eastman Kodak Company)
415 Madison Ave., New York 17, New York

RECORDAK CORPORATION

* * *

Introduces the

DACOM RECORDING SYSTEM

(Datascope Computer Output Microfilmer)

* * *

A new, high-speed instrument for making microfilm records directly from data stored on magnetic tape or directly from the memory of a computer.

* * *

RECORDAK CORPORATION
(Subsidiary of Eastman Kodak Company)
415 Madison Avenue
New York 17, New York

DESCRIPTION:

The DACOM* Recording System was developed to enable users to make microfilm records directly from data stored on magnetic tape or directly from the memory of a computer. This system eliminates the need for printing on paper before microfilming.

Data is recorded on film in normal page lengths (up to 64 lines) with a maximum of 126 characters per line. When properly processed, the readability of the filmed data is better than present microfilmed records made from paper records printed by a wire printer.

The three main elements of the system are a tape drive, a cathode ray tube character display unit and a camera. An electronic control device provides the synchronizing function between the three elements.

The tape drive is a device which will hold a reel of magnetic tape and on signal from a control unit, read the data on the tape and supply a useable set of electrical impulses to the control unit.

The cathode ray tube character display unit in this system is referred to as the Datascope.* Its purpose is to reproduce the coded information on the magnetic tape or stored in the memory of the computer as alphanumeric characters displayed on the face of the cathode ray tube. Each character is displayed on the face of the tube as it is read from the tape or from the memory of a computer, thereby eliminating the need for a buffer storage.

*Trademark

The camera photographs the face of the display tube and, for systems work may include one or more extra targets which may be photographed to give form lines (column format) or dividing markers between sections of the film (date format). Basically, the camera available will hold 1,000 foot rolls of 16mm unperforated film in magazines. Processing of this film can be done by available processing services and equipment.

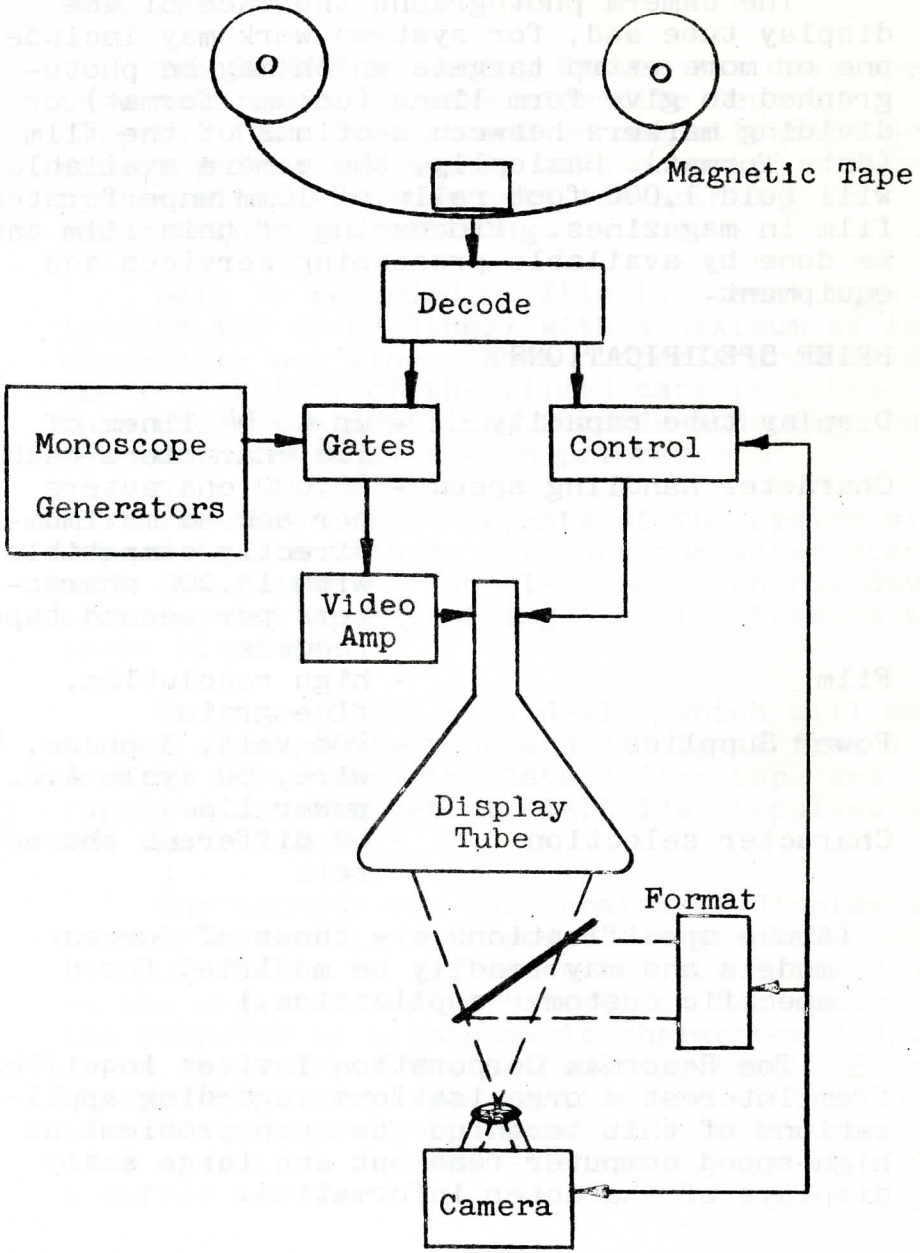
BRIEF SPECIFICATIONS:

Display tube capacity	- up to 64 lines of 126 characters each
Character handling speed	- 20,000 characters per second maximum--directly compatible with 15,000 characters per second tape readers
Film	- high resolution, fine grain
Power Supplies	- 208 volt, 3 phase, 4 wire, 60 cycle A.C. power line
Character selection	- 60 different characters

(Above specifications are those of current models and may readily be modified for a specific customer application.)

The Recordak Corporation invites inquiries from interested organizations regarding applications of this technique to such problems as high-speed computer read out and large scale displays of character information.

DACOM RECORDING SYSTEM



Recordak Corp. 5/12/60